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EXAMINER
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ART UNIT	PAPER NUMBER
2452	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/666,647	LEE ET AL.	
	Examiner	Art Unit	
	HIEU T. HOANG	2452	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-10,12,13,16,18-25,28,30,32,34,35,39,41,42,51-56,71,72,74 and 75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/3/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-6,8-10,12,13,16,18-25,28,30,32,34,35,39,41,42,51-56,71,72,74 and 75.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/04/2008 has been entered.

2. Claims 1-6, 8-10, 12, 13, 16, 18-25, 28, 30, 32, 34, 35, 39, 41, 42, 51-56, 71, 72, 74 and 75 are pending.

Response to Arguments

3. Applicant's arguments on the U.S.C. 103 rejection have been fully considered but they are not persuasive.

4. Applicant argues that Leung-AAPA does not teach “the PDCP entity located within an SRNC in case of a point-to-point manner and within a CRNC in case of a point-to-multipoint manner; wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) and one PDCP entity exists in the CRNC for each MBMS service in case of the point-to-multipoint manner.” The examiner respectfully disagrees. Applicant seems to disagree that Leung is not related to a UMTS network. The examiner did not intend to use Leung to explain UMTS network, but rather that the application of Leung's centralized header compression to a UMTS network is obvious for one skilled in the art. A UMTS network is known as disclosed by AAPA (fig. 5,

CRNC, SRNC, PDCP compression in each SRNC). AAPA teaches that each dedicated channel is unicast and header compression is done at each SRNC (fig. 5). Leung teaches a centralized header compression that is centralized and serve many Base stations BSs ([0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs). One skilled in the art would have appreciated that the centralized multicast header compression technique of Leung can be applied to a UMTS service shown in fig. 5 of AAPA such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to implement multiple compression/depressions at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6, 8-10, 12, 13, 16, 18-25, 28, 30, 32, 34, 35, 39, 41, 42, 51-56, 71, 72, 74 and 75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. All claims contain the limitation “the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the

CRNC and SRNC." It is vague what being above means. Does it mean in context of a network protocol stack or physical location? Correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-6, 8-10, 12, 13, 16, 18-25, 28, 30, 32, 34, 35, 39, 41, 42, 51-56, 71, 72, 74, and 75 are rejected under 35 U.S.C. 102(e) as being unpatentable over Leung et al. (US 2003/0087653, hereafter Leung) in view of Applicant Admitted Prior Art (background of the invention in the application, figures 1-5, identified as Prior Art and description of these figures, hereafter AAPA).

9. For claim 1, Leung discloses a method for providing point-to-multipoint services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6) in a robust header compression (ROHC) entity located within a packet data service node (PDSN)),

- transmitting the header compressed data in at least one of a point-to-point manner and in a point-to-multipoint manner depending upon a threshold value, to one or more users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B).
- wherein the internet protocol header compression is performed in a ROHC within a PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); and wherein the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

10. For claim 18, Leung discloses method of receiving data of a point-to-multipoint service in a radio communication system (abstract), the method comprising:

- receiving header compressed data ([0068] lines 1-6) in at least one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- decompressing the received header compressed data to allow a user to access the point-to-multipoint service ([0068] lines 9-12).
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); and the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

11. For claim 28, Leung discloses in a radio communication system for providing and receiving data of a point-to-multipoint service (abstract), a radio network controller comprising:

- a header compressing portion that performs Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 2-4, robust header compression ROHC compresses IP data headers in a PDSN); and
- a transmitting portion, operably connected with the header compressing portion, that transmits the header compressed data in point-to-point manner and in at least one a point-to-multipoint manner depending upon a threshold value, to one or more users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a

broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression

at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

12. For claim 35, Leung discloses in a radio communication system for providing and receiving data of a point-to-multipoint service (abstract), a user equipment comprising:

- a receiving portion, that receives in a point-to-point manner and in a point-to-multipoint manner, Internet protocol header compressed data ([0068] lines 1-5, a mobile station MS receives header compressed data, [0111] lines 9-14 and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- a header decompressing portion operatively connected with the receiving portion, the header decompressing portion decompressing the header compressed data to access the point-to-multipoint service ([0068] lines 9-12).
- wherein the header compressed data is formed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the

term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); and the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression

at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

13. For claim 42, Leung discloses a method for providing point-to-multipoint services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6) in a robust header compression (ROHC) entity located within a packet data service node (PDSN),
- transmitting the header compressed data in at least one of a poin-to-point manner and a point-to-multipoint manner according to a type of point-to-multipoint service to one or more users in the radio communication system ([0112] lines 1-7, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B).
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a

broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC);

The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression

at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

14. For claim 51, Leung discloses a method of providing Internet protocol header information to a plurality of terminals in a wireless communication system (abstract), the method comprising:

- performing header compression of Internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- transmitting the compressed header data to at least one terminal of the communication system in at least one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B).
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the

term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC);

the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple

compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

15. For claim 71, Leung discloses a wireless communication system for providing internet protocol header information to a plurality of terminals (abstract), the wireless communication system comprising:

- a header compression module adapted to receive internet protocol header information from an internet protocol module and compress the internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- a transmitting module adapted to transmit the compressed header data to at least one user of the communication system in at least one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B); and
- a receiving module adapted to receive and decompress the compressed header data ([0068] lines 9-12);
- wherein header compression of the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data

service node PDSN in case of the point-to-multipoint manner ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and

- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for each MBMS service in case of the point-to-multipoint manner ([0068] lines 5-8, ROHC in a PDSN).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner, and a controlling radio network controller (CRNC); The PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point manner (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

the PDCP entity is located above a radio link control (RLC) entity or a medium access control (MAC) entity of the CRNC and SRNC (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

16. For claims 2 and 74, Leung-AAPA discloses the invention as in claims 1 and 71. Leung-AAPA further discloses the point-to-point manner is employed if a total number of users within a cell is below the threshold value (Leung, fig. 16 steps 904, 910, and 912).

17. For claims 3 and 75, Leung-AAPA discloses the invention as in claims 1, 71. Leung-AAPA further discloses the point-to-multipoint manner is employed if a total number of users within a cell is at or above the threshold value (Leung, fig. 16 steps 904 and 906).

18. For claims 4, 30, Leung-AAPA discloses the invention as in claims 1, 28, and 35. Leung-AAPA further discloses the Internet protocol header compression is respectively

performed for each type of MBMS service to be provided (Leung, figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6).

19. For claims 5 and 19, Leung-AAPA discloses the invention as in claims 1 and 28. Leung-AAPA further discloses the point-to-point manner is transmitting data from a single sending point to a single receiving point (Leung, fig. 15A, each dedicated channel links between one BSC and 1 MS).

20. For claims 6 and 20, Leung-AAPA discloses the invention as in claims 5 and 19. Leung-AAPA further discloses the point-to-point manner is based upon a total number of users within a cell of the radio communication system (Leung, fig. 16 steps 904, 910, and 912).

21. For claim 21, Leung-AAPA discloses the invention as in claim 19. Leung-AAPA further discloses the transmitting by point-to-point manner is via a dedicated channel (Leung, [0111] lines 9-14).

22. For claims 9, 22, 53, and 72, Leung-AAPA discloses the invention as in claims 1, 51, and 71. Leung-AAPA further discloses the point-to-multipoint manner is transmitting data from a single sending point to multiple receiving points (Leung, [0111] lines 1-3).

23. For claims 10 and 23, Leung-AAPA discloses the invention as in claims 9 and 22. Leung-AAPA further discloses the point-to-multipoint manner is based upon a total number of users within a cell of the radio communication system (Leung, fig. 16 steps 904 and 906).

24. For claims 13, Leung-AAPA discloses the invention as in claim 1. Leung-AAPA further discloses the header compression is performed at a central location for each type of MBMS service (Leung, [0033] lines 3-6 and [0068] lines 5-6, a PDSN is read as a central location).

25. For claims 16 and 25, Leung-AAPA discloses the invention as in claims 1 and 18. Leung-AAPA further discloses a MBMS service is a service that is provided to a specified plurality of users (Leung, [0111] lines 1-5, a group call is a point-to-multipoint application to members of a group).

26. For claim 52, Leung-AAPA discloses the invention as in claim 51. Leung-AAPA further discloses header compression is performed once for the data transmitted to the plurality of terminals when the data is transmitted in the point-to-multipoint manner (Leung, [0068] lines 5-9, the PDSN provides header compression once using ROHC protocol).

27. For claim 54, Leung-AAPA discloses the invention as in claim 51. Leung-AAPA further discloses the threshold value is associated with a number of terminals (Leung, [0111] lines 9-14, and [0112] lines 1-7).

28. For claims 8 and 39, Leung-AAPA discloses the invention as in claim 5 and 35. Leung-AAPA further discloses the transmitting and receiving by point-to-point manner is via a dedicated channel (Leung, [0111] lines 9-14).

29. For claims 12, 24, 41, and 55, Leung-AAPA discloses the invention as in claims 9, 22, 35, and 51. Leung-AAPA further discloses the transmitting and receiving by point-to-multipoint manner is via a common channel (Leung, [0009] lines 13-15).

30. For claim 32, Leung-AAPA discloses the invention as in claim 31. Leung-AAPA further discloses the SRNC transmits via a dedicated transport channel (Leung, [0111] lines 9-14).

31. For claim 34, Leung-AAPA discloses the invention as in claim 33. Leung-AAPA further discloses the CRNC transmits via a common transport channel (Leung, [0009] lines 13-15).

32. For claim 56, Leung discloses the invention as in claim 51. Leung does not disclose at least part of the Internet protocol header information is not compressed.

However, AAPA discloses at least part of the Internet protocol header information is not compressed (page 6 line 25 - page 7 line 5, only the absolutely necessary information required in the header is compressed).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to compress only necessary portions of packet headers to conserve the system resources and time because compressing and decompressing of information takes time and resources.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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HH

/Kenny S Lin/

Primary Examiner, Art Unit 2452